

April 22, 1996  
BDAC - Ecosystem Restoration Work Group

Discussion Notes

Attendees: (Attached List)

**Introduction: (MS)**

1. Seeking questions and policy concerns on:
  - an appropriate vision for CALFED,
  - reference levels of a healthy system,
  - an adaptive management approach,
  - institutional measures and assurances needed, and
  - areas of agreement/disagreement for a restoration strategy.
2. Work Group will direct preparation and review of written reports or issue papers prepared by the joint efforts of members and CALFED staff.
3. Meeting encourages dialogue, integrate any public comment, any comments relating to process.
4. GB: This is an important activity and major challenge. Concerned about our timeline for answering questions and what our needs are for the process.

**Observations from public at recent scoping meetings: (LS)**

1. No disagreement on the focus on ecosystem restoration.
2. ~~Need~~ something to improve the ecosystem not simply mitigation for actions.
3. Strong theme of core and essential actions.
4. Concern about cost and details of proposals.
5. Want to understand strategy not just actions.
6. Want to know targets, ultimate vision, first phase of adaptive management, short term actions.
7. Technical disagreements on limiting factors; what is important has not been studied; need more information on other factors and issues.

**Restoration Strategy: (RS)**

1. Steps leading to a vision:
  - identify limiting factors;
  - develop problem statements;
  - define objectives;
  - develop actions;
  - construct alternatives

- based on elemental strategies,
- including adaptive management, and
- using indicators as performance measures,
- address ecosystem functions; and
- meet our vision of a healthy ecosystem.

2. Key points of strategy:
  - define limiting factors (problems),
  - use natural processes,
  - increase resilience,
  - provide multiple benefits with actions,
  - measure results of actions, and
  - compensate for unavoidable side effects

## Limiting Factor Approach: (DD)

Presentation of charts: species vs. functions; components vs. functions.

## Discussion

1. SP: How well would each alternative address functions in matrix?
2. GB: Is there a conflict between the limiting factor and systemwide approaches? A: We don't have all the answers on limiting factors for each species.
3. BH: The Ecology Work Team of IEP has prepared a report on limiting factors. What we know about limiting factors. Scientific background on issues such as toxic effects. Species basis plus POC.
4. RF: Do each of the alternatives address the limiting factors? Do they differ by degree of address? A: There are different approaches; some are deficient.
5. NB: Limiting factors approach is good. Historical Delta was managed by Native Americans. They burned tules for 8,000 years. May have contributed to productivity. Salmon productivity also likely related to high level of harvest. Ricker curve concept where highest productivity of salmon population (in terms of recruits per adult or total adults produced) occurs at moderate harvest levels. When natives had malaria die-off in 1833, salmon populations declined, only to later increase with higher harvest rates.
6. DD: The decline in tule marsh management by the natives, along with hydraulic mining, lumber harvest, farming, watershed degradation, all probably contributed to declines. Keep in mind that we are seeking a balance among competing uses.
7. GB: The historical system should provide guidance, but it should not be our target. Our challenge is to develop objectives for species/issues that we know about and fill in other less

well-known issues as we gain greater understanding.

8. RF: Analysis of historical conditions is an inherent approach to setting program targets. Don't set historical levels as goals, as system has changed; intent is to understand how nature functions.
9. NB: Salmon harvest data goes back to 1870s; provides clues as to limiting factors.
10. RF: Hatchery management affects need to be addressed. Genetic affects including gene introgression should be considered. The designers of new Tuolumne hatchery have taken these considerations into account: to supplement and help the wild population, not to independently produce more salmon.
11. TZ: Suggest Historical Review of Geography by J. Thompson. Settlement geography and levee island changes in the Delta. Helpful to overlay fishery stats over levee development to determine effects of big physical changes that have occurred in the valley. Also the Potato Culture of the 50's and 60's that burned peat fields of Delta that may have increased Delta productivity. The decline of peat burning in recent decades may have decreased productivity (organic carbon and nutrient influx to Delta in agricultural drains may have declined).
12. RF: There are dangers in that approach: correlation's do not mean cause and effect. Multifactor analyses are needed to separate effects of various factors operating. Need an ecological model that simulates effects of different factors on life history to better predict cause and effects.
13. TZ: Can't turn Delta back to tule marsh (too deep now). Physical changes did not seem to have effect on fish populations; recent declines are not associated with major physical changes.
14. KH: How do limiting factors address problem areas?
15. DD: Perception of problems. Functions of habitats. What problems will be fixed by actions. We don't have adequate models for many functions. We can piece together pieces.
16. KH: Is this our list of species? Are we going to add to this?
17. DD: These are only examples. We may not have name of best indicator. We have concepts by looking at system. It is a complex puzzle.
18. KH: What gaps are in this list? Where are the plants?
19. DD: We are looking for conceptual strategies: programmatic-level strategies.
20. MS: The purpose of the working group is to provide CALFED and BDAC a conceptual foundation for the restoration strategy. Is the limiting factor analysis a viable approach?

21. NB: Limiting factors are the right way to go. Hatchery management is a core action, but we need to go beyond that and develop policy on hatcheries. We need a sub-workgroup on hatchery issues.
22. DD: Experts from outside may be helpful. May need wholesale reform. If hatcheries provide most of the adults then Delta may be key area.
23. NB: Worried about any reductions to hatchery programs as they may be providing most of the fish either directly or through offspring of hatchery spawners. We have a big task before us.
24. BH: Limiting factor approach? Is there another approach? One that draws on our knowledge of relationships between outflow and species abundance. Can we continue to draw 7 MAF from the Delta by simply adding habitat restoration? Should we place such a bet?
25. DD: Can we compensate for losses in one life stage by addressing limitations in another life stage? Don't know. Is it prudent to focus on one aspect such as habitat? If entrainment remains a problem after habitat is rehabilitated, then there are ways to deal with that problem later.
26. RF: Problem with species specific approach. An alternative would be to forget about species and concentrate on what defines health of the ecosystem. Concentrate on important ecological functions: water flow, sediment transport, etc. Rely on indicators of important processes rather than species abundance as indicators. Try to understand process and let species shake themselves out. Rare species should not drive process.
27. SP: Need to translate science into plain English. Can't get people to commit money on matrices: you need real words and details on issues such as spawning vs. hatcheries. Focus on vision: keep from getting drawn in on details of program over next few years. Scientists need to work on each strategy and how to implement it. Follow multiple strategies at first, stay away from arguments.
28. LS: The alternatives give us 10 approaches; however, we need to make it clear that we have a single restoration strategy. We are trying to improve functions through an adaptive management approach. Need agreement on what we know and what we need to know. Conflicts should be assigned to ongoing process that doesn't derail us. Take actions and develop data for second stage. Vision may not be defined by limiting factors but by functions. Critical limiting factors of ESA species may be focus of first phase. We should get agreement on targets and target levels for first phase.
29. SP: Target should be to restore as much as you can afford.
30. LS: To overreach on cost would bring the program down politically.

31. RF: Is adaptive management possible by starting small and building?
32. TZ: Can put limits on what you are doing. Look at what is available now to populations. Get a sense at what is there. CALFED should be doing this now.
33. PR: We are torn between two approaches. We don't know enough. Limiting factors change. Functional approach is good, but we know less about this. Balance between these approaches is challenging. Adaptive management is important.
34. GB: Everyone understands that the blueprint will change depending on understanding. Two approaches are not mutually exclusive. Systems approach is ultimately best way to manage, but have to start with system components (species). CALFED program should not just address species, but services and functions that would be tied to species we want to help. It is an OK process as long as subject to revision (adaptive management). Direct toward a vision of ecosystem; set reference points for function and species.
35. BH: Adaptive management requires a choice of deciding what to do. How do you do adaptive management? Why not focus all your resources on one system such as the San Joaquin habitat corridor? If habitat works on the San Joaquin, then restore habitat elsewhere. We have a limited pot of money, so we should focus our dollars where they will do some good.
36. RF: Adaptive management can be viewed as contrary to knowing what to do for species: learn by doing. Solution is to have a long-term vision and how to get to that vision through adaptive management. Desire for certainty conflicts with concept of adaptive management.
37. SP: Will restoration occur? NO! Things will continue to change. We should simply strive to continually make improvements to the existing situation and not try to restore. A managed habitat problem is more realistic goal.
38. PR: Stakeholders are about to publish a literature review of habitat restoration that includes references to 8,000 publications with a theory overview and local focus.
39. DD: This is good because staff does not have time for such efforts, and encourage them.

### **Slides of Staten Island: (DD)**

Channel islands and erosion of habitat features in Delta channels.

1. TZ: There was a recent conference in Stockton on how to save the remaining channel berms. There are public financing opportunities for levee improvements and protection of the sycamore islands. Vision should include restoring these areas. There are many opportunities for this.
2. BH: Data available (from IEP) are mostly from midchannel surveys, little data have been

collected on shallows of the Delta. Resident fish survey did some electrofishing, but other than that little is known. We need more information on shallow-water habitats of the Bay and Delta. Our workteam recently did some surveying in the shallows of Liberty Island (flooded) and found many native species including trapped winter-run salmon.

3. DD: Agrees: dragging nets in the channels does not show the true species composition.
4. GB: Yes: we have now reached the red light on winter-run at the pumps.

## Public Comment

1. What about CALFED targets? Any comment from the public attending?
2. The economics of habitat types and values are needed. Cost of protecting channel islands (berms).
3. RF: Cost per smolt production was recently developed for different actions on the Skagit River in Washington. I have invited them to come to our next meeting to present their results.
4. RH: Farmer from Sutter Co. Industrialization of farming in Central Valley after WWII caused many problems including toxic chemicals and habitat destruction. Farmers are now voluntarily engaged in restoration of the habitat that they have destroyed. They are participating and willing to do more. The way water rights as set up encourage waste; farmers could save a lot of water.
5. DD: To have a sportman's paradise once again is not an outrageous vision.
6. MS: Important to include elements that address water quality problems. We need to improve water quality in the Valley.
7. RF: What are the economics of organic farming?
8. RH: There is a very good market niche. Organic rice farmers recently won awards. Very viable.
9. TF: The San Joaquin irrigation districts have forged ahead to restore tributaries, spawning habitat, and flows for salmon. Process-oriented approach includes restoration and assessment of functions, ecosystem approach, and how to improve functions. Looking at effects of gravel mining, gold mining, and loss of riparian habitat from land use practices. Also looking at main San Joaquin River. There is no overall direction: each tributary and mainstem is working independently.
10. DD: CALFED would like to coordinate all restoration efforts including San Joaquin Basin.

11. TF: Adaptive management is important. Learn as we go. How do we implement riparian habitat restoration?

## Agenda for Next Meeting

1. MS: Meet once per month; next meeting in May. Subject for discussion: healthy reference conditions; adaptive management for CALFED.
2. GB: Important to get resolution before CALFED moves out of Phase I. What is necessary to answer remaining questions? We are not a technical group. We can advise, but can't answer questions. So how will we get technical answers to questions for Phase I?
3. SP: So what is the vision? Write-up is good. I like it because it doesn't say restore. The vision should be to simply achieve improvements in ecosystem health.

### Questions:

- What agencies will have jurisdiction for planning actions?
- How will habitat and ecosystem restoration proposals be approved?
- What are the goals, proposed objectives, and expected benefits of the proposed actions?
- How are actions to be prioritized to fit scientific criteria, funding available, and regional distribution of programs?
- What will be annual and long-term funding needs and proposed sources?
- How will monitoring and adaptive management review be structured to ensure that the programs are meeting the needs of local and regional habitat and ecosystem management?

Need program structure for CALFED to reach this vision. Core actions are too expensive. Need to boil them down to actions that can be implemented immediately with existing funding. All others should go into long-term action program. As long as we focus on biological arguments we will go around in circles for years.

4. GB: Agree. Technical and biological issues need to be framed by CALFED. Have to have a better idea of what we are trying to manage and restore. We need expectations; we need to know what will be key arguments in the future.
5. TZ: Need to consider regulatory process. How we will get through the permit process.
6. NB: Need discussion and sorting through of technical and policy issues early in the process. What kind of ecosystem do we want to see.
7. BH: I will present results of IEP report at next meeting.
8. BR: Concerned about managing the program - getting a working program.
9. DD: Would the group like to see information on meander belts?

10. BR: Field trips and slide shows are helpful.
11. MS: Need to focus more on technical and policy issues. What seemed to work in this meeting?
12. LL: We don't need to get bogged down in data; that is not our role. Should stick to discussion of issues and strategies.
13. SP: Should focus on things that are important and needs of BDAC.

Adjourned.